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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SAWHNEY, HARGOBIND S

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/771,714	Applicant(s) CLEAVER ET AL.	
	Examiner Hargobind S. Sawhney	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,7-12,14-21 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,7-12,14-21 and 23-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/29/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on July 13, 2006 has been entered. Accordingly:
 - Claims 1, 14, 19 and 25 have been amended; and
 - Claims 2, 4-6, 13, 22 have been canceled.
2. The Information Disclosure Statement (IDS) filed on June 29, 2006 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Wynn Willson (US Patent No.: 6,676,284 B1).

Regarding claims 25 and 27, Wynn Willson ('284 B1) discloses an illumination device comprising:

- a substantially rod-like member 12' – the combination of optically contacting elements 12 and 17- including a light receiving surface – inner surface the rod-like member 17-, and light-emitting surface – outer surface of the rod-like member 12' (Figure 9, column 13, lines 8-10;
- the rod-like member 12' composed of a substantially flexible material (Figure 9, claim 6);

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- a flexible circuit board 14 received in the internal channel defined by the rod-like member wall (Figure 9, column 2, lines 28-30; column 9, lines 17-24; and claims 6 and 34);
- a plurality of spaced light sources 15 arranged on the flexible circuit board 14, and the point light sources 15 arranged in line extending along the light receiving surface of the rod-like member 12' (Figure 9, column 12, lines 60-64);
- the light incident and scattered on the light receiving surface of the rod like member 12', appearing uniform along the light emitting surface (Figure 1, column 13, lines 7-16; and claim 1).
- a collection surface 16, positioned near the point light sources 15, capable of reflecting light not emitted directly into the rod-like member 12' (Figure 9, column 13, lines 1-7); and
- the point light sources 15 being light emitting diodes (LEDs) (Figure 9, column 12, lines 60-64).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1, 3, 4, 7-10, 13-15 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeichi (English translated Japanese Patent Application Pub. No.: JP 61165583), hereinafter referred as Takeichi, in view of Blanchet (US Patent No.: 4,811,507).

Note: The information disclosure statement (IDS) filed on June 3, 2005 includes the English translated Japanese Patent Application Pub. No.: JP 61165583).

Regarding Claim 1, Takeichi discloses an illumination device comprising:

- a substantially rod-like member 3 (Figure 1, Takeichi, page 3, line 22) having a predetermined length with a light receiving surface – the surface adjacent to the light-emitting surface of the light-emitting element 1 (Figure 1, Takeichi, page 3, line 22);
- the rod-like member 3 composed of substantially flexible compound impregnated with filler deflecting light and producing uniform light intensity pattern (Figure 1, Takeichi, page 3, line 22; and page 5, lines 5 and 6);
- an elongated and substantially flexible light source 1 – a plurality of light emitting elements connected with a flexible conductive wire 2 – positioned adjacent to the light receiving surface (Figure 1, Takeichi, page 3, line 21); and
- the light, emitted from the light-source 1, entering the rod-like member 3 through the light-receiving surface, being scattered (Figure 1, Takeichi, page 5, lines 6 and 7),

- the light sources spaced along a line extending along the rod-like member 3, and the spacing – close proximity and embedment of the light sources - between the light sources 1 producing an elongated uniform light intensity pattern (Figure 1, Takeichi, page 6, line 15-20).

However, Takeichi does not specifically teach the rod-like member including the filler including micro balloons each having a shell, and deflecting light incident thereon..

On the other hand, Blenchet ('507) discloses an illumination apparatus including a light-conducting member 1 (Figure 3, column 2, line 62) formed of a light-transmitting material having micro balloons 6 (Figure 3, column 2, lines 62-65); each of the micro balloons having a shell – the boundary defined by the filler, which is surrounding each shell -(Figure 3, column 2, lines 62-65).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Takeichi by providing the rod-like member composed of a flexible material with impregnated micro balloons as taught by Blanchet ('507) for benefit and advantage of providing re-emission of light that enhancing the light reflection of light within the light guide element.

Regarding claims 3, 4, 7-10 and 13-15, Takeichi in view of Blenchet ('507) discloses the illumination device further comprising:

- the flexible compound made of silicone rubber (Takeichi, Figure 1, page 4, line 23);

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- a housing 33 enclosing the light source 1; the housing positioned below and extending along the rod-like member 3 (Takeichi, Figure 1, page 5, line 6);
- the housing 33 including a pair of side walls – the upper portions of the walls of the left and right halves of the housing 33 (Takeichi, Figure 1, page 5, line 6) - defining an open-ended channel extending substantially the predetermined length of the rod-like member 3 (Takeichi, Figure 1);
- the housing 33 further including a floor portion - the lower portion common to the side walls of the left and right halves of the housing 33 (Takeichi, Figure 1, page 5, line 6)- defining substantially U-shape of the housing 33 (Takeichi, Figure 1 and 2);
- the housing 33 further including internal surface 32 with a light –reflective material (Takeichi, Figures 1 and 2, page 4, lines 25-27);
- the light source 1 including a multiplicity of spaced point- light sources extending along the light-receiving surface of the rod-like member 3 (Takeichi, Figure 1, page 3, lines 23-27);
- the multiplicity of point-light sources being LEDs (Takeichi, Figure 1, page 4, lines 2 and 3); and
- the rod-like member 3 defining an internal channel – the longitudinal space housing the multiplicity of spaced LEDs (Takeichi, Figure 1).

Regarding claims 19-24, Takeichi in view of Blenchet ('507) discloses the illumination device comprising the apparatus elements in similar manner as that applied

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to claims 1-4, 7-10, 13-15 detailed above. In addition, Takeichi in view of Blenchet ('507) teaches the illumination device further comprising:

- the housing 33 including a pair of side walls – the upper portions of the walls of the left and right halves of the housing 33 (Takeichi, Figure 1, page 5, line 6) – defining a volume adjacent the light receiving surface (Figure 1);
- the housing 33 receiving elongated light source including a plurality of LEDs linearly spaced from one another (Takeichi, Figure 1); and
- the housing 33 further including internal surface 32 with a light –reflective material (Figures 1 and 2, Takeichi, page 4, lines 25-27).

The combined teaching Takeichi in view of Blenchet ('507) applied to claims 1-4, 7-10, 13-15 meets the method limitations of claims 19-24.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to meet the method limitations of claims 19-24 by applying the combined teaching of Takeichi in view of Blenchet ('507) detailed above.

1. Claims 11, 12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeichi (English translated Japanese Patent Application Pub. No.: JP 61165583), hereinafter referred as Takeichi, in view of Blanchet (US Patent No.: 4,811,507) as applied to Claim 1 above, and further in view of Luk (US Patent No.: 6,846,094 B2).

Regarding claims 11 and 16, dependent on claims 8 and 15 respectively, Takeichi in view of Blenchet ('507) discloses an illumination device comprising a rod-like

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member optically coupled with spaced plurality of LEDs electrically connected with one another.

However, neither combined nor individual teaching of Blenchet ('507) and Takeichi specifically teaches the illumination device including a flexible circuit board bearing the plurality of LEDs.

On the other hand, Luk ('094 B2) discloses a flexible LED lighting device 10 (Figure 1) including a flexible circuit board 24 bearing a plurality of LEDs 36 spaced from one another (Figure 1, column 5, Lines 23, 28 and 36-38).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the rod-like member of Takeichi in view of Blenchet ('507) by providing flexible circuit board bearing a plurality of LEDs as taught by Luk ('094 B2) for benefit and advantage of easy forming of the device to a desired shape.

Regarding each of claims 12 and 17, dependent on claims 11 and 16 respectively, Takeichi in view Blenchet ('507) and Luk ('094 B2) of discloses an illumination device comprising a rod-like member optically coupled with spaced plurality of LEDs electrically connected with one another. Additionally, Takeichi in view Blenchet ('507) and Luk ('094 B2) teaches securing the plurality of LEDs mounted on a flexible circuit board with filling of the light-transmitting casting material of the flexible bar-like casting (Figure 1, Takeichi, page 3, line 22).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeichi (English translated Japanese Patent Application Pub. No.: JP 61165583), hereinafter

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referred as Takeichi, in view of Blanchet (US Patent No.: 4,811,507) as applied to Claim 1 above, and further in view of Ghandehari (US Patent No.: 5,537,297).

Takeichi in view of Blanchet ('507) discloses an illumination device comprising a rod-like member optically coupled with spaced plurality of LEDs electrically connected with one another.

However, neither combined nor individual teaching of Takeichi and Blanchet ('507) specifically teaches the illuminating device including a rod-like member further including a collection surface adjacent a portion of the outer surface of the rod-like member, and the collection surface positioned near the light source.

On the other hand, Ghandehari ('297) discloses a reflecting lighting device including a rod-like member 12 including a collection surface 50 positioned near a light source 15 (Figures 1-3, column 3, lines 17-21 and 55- 55-59).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the rod-like member of Takeichi in view of Blanchet ('507) by with a collection surface as taught by Ghandehari ('297) for benefit and advantages of controlling the direction of the light reflected through the rod-like member.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wynn Willson (US Patent No.: 6,676,284 B1) in view of Sugiyama et al. (US Patent No.: 5,982,969).

Wynn Willson ('284 B1) discloses an illumination device comprising a light collection surface positioned on the inner surface of the rod-like member, and near the point light sources.

However, Wynn Willson ('284 B1) does not specifically teach the light collection surface positioned adjacent a portion of the outer surface of the rod-like member as claimed by the applicant.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to realize the optical equivalency of positioning the collection (reflective) surface on the outer surface of the rod-like member, instead of placing the reflective surface on the inner surface of the rod-like member as evident in Sugiyama et al. ('969) (Figures 3 and 7, column 6, lines 38-44; and column 8, lines 38-40).

Additionally, the above-indicated modification imparts benefit and advantages of controlling the direction of the light reflected through the rod-like member.

9. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wynn Willson (US Patent No.: 6,676,284 B1) in view of Blanchet (US Patent No.: 4,811,507).

Regarding claims 28 and 29, Wynne Willson ('284 B1) discloses an illumination device comprising a rod-like member composed of flexible compound defining a cavity receiving a flexible circuit board bearing a plurality of spaced point light sources.

However, Wynne Willson ('284 B1) does not specifically teach the flexible compound impregnated with filler deflecting light incident thereon.

On the other hand, Blenchet ('507) discloses an illumination apparatus including a light-conducting member 1 (Figure 3, column 2, line 62) formed of a light-transmitting material having micro balloons 6 (Figure 3, column 2, lines 62-65.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Wynne Willson ('284 B1) by providing the light-conducting member composed of a flexible material with impregnated micro balloons as taught by Blanchet ('507) for benefit and advantage of providing re-emission of light that enhancing the light reflection of light within the light guide element.

Response to Amendment

10. Applicant's arguments filed on February 15, 2006 with respect to the 35 U.S.C. 102(b) rejections of claims 25 and 27, and 35 U.S.C. 103(a) rejections of claims 1,3,4,7-10, 13-15 and 19-24 have been considered but they are not persuasive.

Argument: Regarding the amended claim 25 (amended), Wynne Willson ('284 B1) suggest use of a thin-film, tube-like diffuser 17 with an outer diffuser 12. Therefore, Wynne Willson ('284 B1) does not meet the limitation "an essentially solid and substantially rod-like member".

Response: Claim 25 recited "an essentially solid and substantially rod-like member defining an internal channel receiving a flexible circuit board". This limitation reflects a hollow light-conducting rod including a flexible circuit board received in the hollow cavity. As in this office action, Wynne Willson ('284 B1) discloses an illumination device meeting the above-indicated limitation.

Further, the specification neither defines nor provides any guideline with reference to the phrase “essentially solid”.

Therefore, Wynne Willson ('284 B1) meets the limitations of the amended independent claim 25.

Argument: Regarding the amended claim 25 (amended), Wynne Willson ('284 B1) does not suggest or teach a flexible circuit board received in an internal channel defined by the essentially solid rod-like member. Therefore, Wynne Willson ('284 B1) does not meet the limitation “an essentially solid and substantially rod-like member”.

Response: Wynne Willson ('284 B1) teaches a printed flexible circuit board 14 received in the internal channel defined by the rod-like member wall (Figure 9, column 2, lines 28-30; column 9, lines 17-24; and claims 6 and 34). Note that Wynne Willson ('284 B1) also teaches the linear array may be flexible and deformable (column 2, lines 27-20. The above indicated teaching of the lighting device requiring a flexible circuit board directly applies to the respective limitation of the claim 25.

Therefore, Wynne Willson ('284 B1) meets the limitations of the amended independent claim 25.

Argument: Regarding Claim 1, neither Takeichi not Blachet discloses, alone or in combination, a multiplicity of point light sources

arranged to map the light emitted in to the rod-like member to create elongated over lapping light intensity pattern. Therefore, neither in combination nor individually Takeichi and Blachet meets the limitations of claim 1.

Response: Takeichi discloses an illumination device comprising:
a substantially rod-like member 3 (Figure 1, Takeichi, page 3, line 22) having a predetermined length with a light receiving surface – the surface adjacent to the light-emitting surface of the light-emitting element 1 (Figure 1, Takeichi, page 3, line 22);

the light, emitted from the light-source 1, entering the rod-like member 3 through the light-receiving surface, being scattered (Figure 1, Takeichi, page 5, lines 6 and 7),

the light sources spaced along a line extending along the rod-like member 3 (Figure 1, Takeichi, page 6, line 15-20).

Close proximity, and embedment of the light sources in a transparent internally reflecting (light guide) material would produce an elongated uniform light intensity pattern because of overlapping of the light intensity pattern of the point light sources.

Therefore, Takeichi in view of Blachet meets the limitations of the amended independent claim 1.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Robertson et al. (U.S. Patent No. 6,860,628 B2), Katoh (U.S. Patent No. 5,187,377), Sato et al. (U.S. Patent No. 4,901,207) and Katoh et al. (US Patent No.; 4,847,734)

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 571 272 2380. The examiner can normally be reached on 8:30 AM - 4:30 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571 272 2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HSS

9/7/2006


ALI ALAVI
PRIMARY EXAMINER